Modified PTO/SB/33 (10-05)

PRE-APPEAL BRIEF REQUEST FOR REVIEW	Docket Number Q80489	
	Application Number 10/802,883	Filed March 18, 2004
Mail Stop AF Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450	First Named Inventor Yoshinori YOSHIDA	
	Art Unit 1794	Examiner Thao T. TRAN

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a notice of appeal

The review is requested for the reasons(s) stated on the attached sheet(s).
Note: No more than five (5) pages may be provided.

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January 21, 2009
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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Docket No: Q80489
Yoshinori YOSHIDA, et al.	
Appln. No.: 10/802,883	Group Art Unit: 1794
Confirmation No.: 5194	Examiner: Thao T. TRAN
Filed: March 18, 2004	

For: CLEANING SHEET AND ITS PRODUCTION METHOD AS WELL AS TRANSPORTING MEMBER HAVING SUCH CLEANING SHEET

PRE-APPEAL BRIEF REQUEST FOR REVIEW

MAIL STOP AF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Pursuant to the Pre-Appeal Brief Conference Pilot Program, and further to the Examiner's Final Office Action dated September 18, 2008, Applicant files this Pre-Appeal Brief Request for Review. This Request is also accompanied by the filing of a Notice of Appeal.

The Invention

As defined by independent claim 1, the invention is a single cleaning sheet for removing foreign matter adhering on a tip of a probe needle of a probe card. The sheet comprises a cleaning layer having a specific composition (a urethane polymer and a vinyl polymer comprising an acrylic polymer) and additives in amounts within a range in which the probe needle is not worn. The cleaning layer is defined by physical parameters (elastic modulus within a range of 0.5-100 N/mm^2 and a thickness within a range of 10 to 500 μm) and several express functions.

The claim expressly requires that the cleaning layer is (1) adapted to receive penetrating probe needles and (2) remove and retain impurities from a tip of said probe needles, (3) such that there will be no re-adhering of the foreign matter or the cleaning layer material on the probe needle after the cleaning operation.

Claim 1 contains limitations that are representative of other independent product and method claims, and the following analysis demonstrating clear error in the Examiner's formulation of a prima facie rejection is applicable to all the claims. Claim 1 defines an economical structure that is uniquely capable of efficiently and effectively solving a problem in

the art, specifically, the removal of debris from probe tips used in semiconductor manufacturing without damage to the probe tips while avoiding residual contamination.

Clear Error in the Rejections

The Examiner looks to the patents to Skinner and Grube to reject claim 1 as being obvious in view of their teachings individually. As demonstrated subsequently, neither reference alone renders the claimed cleaning sheet obvious, as each is substantially different from the invention in structure, function and effect. Moreover, their combination would not lead to the invention (1) as they are incompatible with each other and (2) fail to teach all the limitations of claim 1.

The rejection should be withdrawn because (1) the functional limitations in the claims are effective to define the metes and bounds of the recited materials in the cleaning layer and (2) the cited prior art has clear and express teachings of materials and cleaning steps that function in a direction opposite to that of the present invention, as specifically described below.

The structure of the invention is defined by the function of its materials, just as structures may be defined by the function recited in "means plus function" limitations under 35 U.S.C. § 112, paragraph 6. The functions define and limit the invention, and distinguish the invention over the prior art materials, which may have similar chemical compositions but for various reasons, such as processing parameters, temperatures, radiation or the like, function totally differently.

Limitation 1: Receive Penetrating Needles

Skinner

Skinner does not teach the function of penetrating into a cleaning pad. Indeed, Skinner et al has no relationship whatsoever to a probe cleaning pad. Most importantly, Skinner intends to prevent penetration of its coating, as it is "protective" and has the characteristics of being "hard and tough."

More specifically, Skinner does not teach or suggest that a function of its curable coatings may be in a cleaning pad application. In fact, the exclusive environment for Skinner is the formulation of "interpenetrated resin compositions [that] form ***tough and hard coatings*** on various substrates" (see Abstract), in particular, "***protective***, transparent or translucent coatings for various substrate materials such as wood, paper, metal and plastics."(col. 1, lines 12-15) The focus is on the material and the function of that material is the provision of a ***tough, hard and protective coating***, not one that is to be penetrated. Such coating would surely result in abrasion and wear of a probe as such tough, hard and protective coating would not function to receive probes in a repetitive cleaning process.

Finally, "adapting" the materials in the coatings of the Skinner" to have the features of the present invention would require the inventive steps only taught by the applicants. "

Grube

With respect to Grube, the reference teaches a sticky surface roller 204 in combination with an "abrading pad," an "abrading block" or an "abrading roller" that is not illustrated or numbered (see col. 3, lines 49-67). The **abrading pad**, for example, is discussed at col. 9, lines 1-20 as possibly receiving a probe. However, there is no teaching that the roller is penetrated. The abrading pad is penetrated to loosen contaminants in a first step, and the roller is required to remove the resulting debris after loosening in a second step.

Specifically, the text requires first pressing and extracting the tips of probes 104 against an abrading pad (not the roller). Thus, debris on the tips are scrapped off or loosened by repeating a cleaning cycle of pressing and extracting the tips of the probe against (and possibly into) the abrading pad. There is no suggestion that the tips go into the roller 204 or teaching with respect to the material of the roller. Pressing the probe tips into the abrasive pad will clearly abrade the tips, as the pad is made of abrasive material such as tungsten carbide.

The structure and steps of Grube are totally contrary to the present invention, as the goal in Grube is simply "limiting any damage" (which admits that damage occurs) while the present invention avoids damage.

Two Structures vs One Structure

Based upon the foregoing, it is clear that Grube requires ***two*** structures for use in separate steps, namely, an abrading pad and a roller.

By contrast, the present invention has a ***single structure*** that both (1) loosens contaminants when a probe penetrates into the material, and (2) retains the debris, thereby providing an efficient and effective product and procedure that is highly cost effective.

Cleaning by Abrasion vs No Abrasion Material

In Grube, the abrading pad is made from tungsten carbide or any other appropriate material whose hardness is substantially similar to the hardness of the probe tips (col. 9, lines 6-9 in US 6,817,052). Such "abrading pad," as taught in Grube, will abrade the tips of probes to thereby expose the clean surfaces of the probe tips. For effective operation, both tungsten carbide and the material constituting the probe tips are metals.

By contrast, the "cleaning sheet" of the present invention is made of polymer that is soft and receptive to probe insertion without abrasion.

Limitation 2: Remove and Retain Impurities

The claim states that the single cleaning sheet is operative to both remove and retain impurities. Clearly, for the purpose claimed, this is substantially all impurities.

Skinner

To one skilled in the art, the very nature of the hart, tough and protective coating in Skinner would preclude it from removing and retaining impurities. Even if forced penetration of

the hard material would remove some foreign matter, that material would not retain the foreign matter as its characteristics would cause debris to shed from the material as dust, particles or the like. There would be no adhering. For these reasons the second limitation is not in Skinner.

Grube

Grube clearly relies on an abrasion function of an abrasive structure to remove foreign material. However, the foreign material is left on the surface of the abrasive structure, the probe or the surroundings, thereby causing a contamination problem. Indeed, this is the source of the problem that Grube solves by using a separate sticky roller to retain the residual contaminants left on the probe, as explained at col. 4, lines 25-33.

By contrast, the "cleaning sheet" of the present invention has the function of (1) removing and retaining foreign matter adhered to the probe needle by wiping and pulling on the foreign matter (2) without abrading the tips of probes and (3) without contaminating the environment and probes after the probes are withdrawn. Clearly, the "cleaning sheet" in the present invention has completely different structure and function from that of Grube's "abrading pad" alone or in combination with a roller.

Limitation 3: No Re-adhering of the Foreign Matter

Applicants again respectfully submit that the claims expressly recite that (1) the layer is operative "to receive penetrating probe needles and remove and retain impurities on a tip of said probe needle" and (2) there will be no re-adhering of the foreign matter or the cleaning layer material on the probe needle after the cleaning operation. Applicants again submit that these are structural limitations that define over the prior art.

Skinner

Applicants respectfully submit that the Examiner has no basis for asserting that Skinner has such properties, as none are taught, and the disclosed features of the prior art structure are contrary to the recited function of the present invention.

Cured Tough Outer Layer

The Examiner summarily dismisses the Applicant's argument that Skinner has a cured outer layer that results in a tough surface that prevents (1) penetration by a probe, (2) removal and retention of contaminants, and (3) without leaving cleaning material on the probe. However, the disclosure in Skinner is clear, namely, that the material is "hard and tough' and serves as a protective layer for wood, plastics, and the like. One skilled in the art would understand that this litany of characteristics of the Skinner coating is opposite to those required by the invention.

Even though the disclosed and claimed invention is also directed to a radiation cured layer, which the Examiner asserts may be crosslinked to some limited extent, the distinguishing feature is the existence of several functions not found in the prior art..

Applicants again submit that the coatings in the prior art are ***fully*** crosslinked and, as such, would be too hard for use as a medium for penetration. As already noted, Skinner expressly

states that the coatings are to be "tough, hard and protective." Nothing in Skinner teaches or suggests the opposite, that is, a soft layer that is penetrable numerous times and removes and retains contaminants without placing such contaminants or the layer material onto the probe.

Finally, Applicants respectfully submit that, since Skinner's curable coating is the cross-linked hard coating, such coating would ***not*** be used as a cleaning layer for removably receiving needles and for removing and retaining impurities without readhering of debris, as would be understood by those skilled in the art. Clearly, given the use of fully crosslinked material, there would be adhesion of debris.

Grube

Grube teaches the use of tungsten carbide in his separate abrasive structure that clearly is not intended to retain debris and to produce a probe without adhesion of foreign material, since the abrasive structure must be followed by a surface cleaning roller. By contrast, the cleaning sheet of the invention is made of polymer that is soft and receptive to probe insertion without abrasion, and retains removed material and debris.

Further, if the hard and tough coating of Skinner were applied to the structure of Grube, the coating would break the tips or wear them quickly if penetration were attempted. Finally, Grube only teaches that his "abrading pad" can have a hardness similar to the probe, and from that description, it would be clear that the probe will be abraded and worn during use. Such material cannot retain foreign matter and debris, again, requiring a subsequent removing structure. The invention accomplishes this in one structure.

Finally, the roller by itself is not the claimed cleaning sheet as it is designed for its cleaning function to have the probes roll against and not into its surface. Even though Grube mentions that the probe tips may be pressed against and possibly into the cleaning pad (see col. 9, ln. 1-20), this clearly reflects an incidental and not primary function. Moreover, there is no teaching that there would be no readhering of foreign matter, especially the roller material, on the probe.

Incompatible Prior Art Teachings Prevent Their Combination

Grube et al teaches directly opposite (1) to Skinner et al and (2) the present invention. Grube requires use of an abrasive, which is consistent with having a tough outer layer that would prevent penetration by a probe. The "tough, hard and protective" layer of Skinner et al, if used to clean the tips of probes in Grube, would not involve penetration but only surface rubbing. To the extent that there is penetration of an abrasive pad in a first step required by Grube, followed by a rubbing on a separate roller in a second step, there is a teaching away from the one-step process and structure of the present invention.

Skinner is not combinable with Grube and, even if combined, because each is deficient with respect to the three critical limitations identified above, does not satisfy the limitations in the claims.

Conclusion

For all of the foregoing reasons, the two cited references, individually or together, are clearly deficient in failing to teach all of the limitations of the claims, teach away from the present invention and, are not combinable due to the inconsistency in their structures and operations.